Flight Opportunities

Parabolic Flight Campaign February 2014

Campaign Dates: February 21st - February 29th, 2014
Campaign Manager: Bobby Roe
Total payloads: 7 FOP + 1 Flight Share
Parabolic Profile: 0g only

#	Title	Organization	Description/Objective
1	Telemetric Biological Imaging (12-P)	University of Florida	Biological samples will be imaged in real time during the parabolic flights. Fluorescent images will be compared to biochemical data collected during the flight from parallel samples. Expected flight data will evaluate the effects of the parabolic flight on the performance of the imager and on the gene expression of the biological samples.
2	Parabolic Flight Evaluation of a Hermetic Surgery System for Reduced Gravity (49-P)	University of Louisville	Observe prototype hydrodynamics in relevant environment. Given the hydrodynamics may be different in microgravity, determine optimal placement of suction instrument to remove flood from surgical field. Demonstrate feasibility of surgically repairing tissue in an aqueous environment in reduced gravity conditions. Confirmation of HeSS prototype function and needed changes for next generation prototype.
3	Testing Near-Infrared Neuromonitoring Devices for Detecting Cerebral Hemodynamic Changes in Parabolic Flight (90-P)	Massachusetts General Hospital	Test the sensitivity of NINscan 4a to various changes in cerebral hemodynamics caused by varying-gravity fields. Data on cerebral fluid shifts, hemodynamic responses to vascular pressurization (Valsalva/Mueller maneuvers) and brain function will be used to assess NINscan 4a sensitivity to brain tissue.
4	Monitoring Tissue Oxygen Saturation in Microgravity (94-P)	The University at Oxford	Assess successful basic operation of the technology with respect to data capture in microgravity conditions. Assess ease of use and identify possible risks in the flight environment. Make the first measurements of StO2 in microgravity, providing unique clinical data to guide further maturation for use in space (this data may also provide benefits for this technology's use in patients)
5	Testing a CubeSat Attitude Control System in Microgravity Conditions (101-P)	University of Central Florida	Characterize accuracy of quaternion and angular velocity measurement for random initial orientations. Determine pointing accuracy of magnetic torque coil based attitude control system in the Earth's magnetic field. Obtain real-time data that identify potential flaws in KnightCube systems.
6	Demonstration of Adjustable Fluidic Lens in Microgravity (102-P)	University of Arizona	Validate Fluidic lens performance in a variable gravity environment. Obtain wavefront data to fully characterize component behavior as a function of gravity.
7	Human Exploration Telerobotics (HET) SPHERES Smartphone (125-P)	NASA Ames	Verify smartphone mapping capability in 0g. Verify sensor performance in 0g with thrusters: without the dynamic model on the smartphone, recall position using a known map, and thrusters firing based on smartphone state estimation, no dynamics model with/without satellite beacons.

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